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University affiliation:

- Full Professor, Department of physical activity sciences, University of Quebec at Montreal (UQAM)
- Regular member, Research Group in Adapted Physical Activity, UQAM

Status at Sainte-Justine University Hospital (CHUSJ):

Regular Researcher

Researcher at CHUSJ since 2012

Keywords: Clinical Gait analysis, walking capacities, adapted physical activity, walking assistance, power training, cerebral palsy, neuromuscular disease.

Career Summary

Dr. Ballaz earned his Bachelor's and Master's degree in sport sciences (biomechanics). He then specialized in pathological movement analysis and adapted physical activity (PhD, 2007). Since 2013 is the head of the gait laboratory at Marie-Enfant rehabilitation center. Dr. Ballaz's research program focuses on gait efficiency mechanisms and postural control in children with neurological conditions and musculoskeletal disorder. He studied the effects of acute and chronic physical exercise on gait, walking capacities, and postural control in children with cerebral palsy and neuromuscular disease. Especially, he showed that aerobic physical training improves gait efficiency in children with cerebral palsy and he highlighted key parameters related to walking capacities. He reported the effect of fatigue on gait pattern. More recently, he evaluated the potential of power training to improve walking capacities in children with CP. He also evaluated the impact of partial body weight support on gait and collaborate to the development of innovative walker.

Awards and distinctions

- Full professor, UQAM, 2022
- FRQS - Career Award (Junior 1) (2015-2019)

Significant recent publications

- Dussault-Picard C, Pouliot-Laforte A; Chérière C; Houle E; **Ballaz L**. Locomotion Efficiency in Children With Cerebral Palsy Experiencing Limited Gross Motor Function: Walking Versus Cycling. *Pediatric Phys Ther* (in press)
- Cherni Y, Blache Y, Begon M, **Ballaz L**, Dal Maso F. Effect of Robotic-Assisted Gait at Different Levels of Guidance and Body Weight Support on Lower Limb Joint Kinematics and Coordination. *Sensors (Basel)*. 2023 Oct 29;23(21):8800.
- Smati S, Lemay M, **Ballaz L**. Effect of power training on locomotion capacities in children with CP with GMFCS level III-IV. *Disability & Rehabilitation*. 2023 Jul;45(14):2329-2335.
- Parent A, Pouliot-Laforte A, Dal Maso F, Cherni Y, Marois P, **Ballaz L**. Short walking exercise leads to gait changes and muscle fatigue in children with cerebral palsy who walk in jump gait. *Am J Rehab Med*. 2021 Feb 10.

<https://pubmed.ncbi.nlm.nih.gov/?term=%22Ballaz+%22&sort=date&size=200>